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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/019,019

12/26/2001

Yoichiro Iritani

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07/19/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

JIANG, CHEN WEN

ART UNIT

PAPER NUMBER

3744

DATE MAILED: 07/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,019

Applicant(s)

IRITANI ET AL.

Examiner

Chen-Wen Jiang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 7-10 is/are rejected.
- 7) ☒ Claim(s) 3 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 17.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed "always" is not described in the specification. It is not clear how to apply the "always" on each group; e.g., the upstream of group A and the downstream of group A have the same diameter and spacing.

3. The following rejections are based on the best understanding of the claimed limitations.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Price (U.S. Patent Number 1,946,234).

Price discloses a heat exchanger. Referring to Fig.8, the heat exchanger comprises a container 39 and bundled heat exchanger tubes 48, wherein the total cross sectional area of the

tubes in a downstream section (i.e., the section above inlet 44, a given location) is smaller than a total cross sectional area of the tubes in an upstream section (i.e., the section immediately before the downstream section, middle part of the tubes 48). Price's structure is fully capable of acting as the evaporator that is defined by Applicant's specification and thus, the claimed structure is anticipated by Price. For claim 4, Price's heat exchangers tubes 48 in the central portion of the container are read as tubes in the downstream section which are spaced from each other by a first gap and the tubes in an upstream section (below exit 45) are spaced from each other by a second gap larger than the first gap.

6. Claims 1,4 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Huenniger (JP 10176874).

Huenniger discloses a heat exchanger as shown in Figs.1 and 2. The heat exchanger comprises a container 12, a plurality of heat exchanger tubes 30,40, refrigerant inlet 12-1, refrigerant outlet 12-2, coolant inlet 21 and coolant outlet 22. The heat transfer area of tube 40 is small as compared with the tubes 30 ([0014]).

7. Claims 1,2,7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chiang et al. (U.S. Patent Number 5,839,294).

Chiang et al. disclose a vapor compression refrigeration system. Referring to Figs.4 and 5, the system comprises a compressor 12, a condenser 14, an expansion valve 16 and an evaporator 50. The evaporator 50 includes an outer shell 52 through which passes a plurality of horizontal heat transfer tubes 54 in tube bundle. Fig.5 discloses the total area of first group of tubes 68 is larger than the second group of tubes 72.

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8. Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by (JP Sho 54-22265).

Sho 54-22265 discloses a heat exchanger with tube elements 14. Referring to Figs.4 and 7, the downstream tube spacing (VII-VII) is large than the upstream tube spacing (mid-section). The tubes have the same diameter.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price (U.S. Patent Number 1,946,234) in view of Ogawa, Koike et al. (U.S. Patent Number 4,843,837) and vice versa.

While the 102 rejection of the claims 1 and 4 over Price is deemed acceptable. Should applicant not agree that Price cannot operate as an evaporator per se, claim 1 is also rejectable over Price in view of Ogawa et al., and vice versa. Price shows (Fig.8) the claimed structure as described in the previous section. Price does not specifically state that the heat exchanger can be used as an evaporator, but does not teach against using it as an evaporator. It therefore would have been obvious to anyone of ordinary skill in the art to use Price's device as an evaporator in light of the Ogawa et al. teaching of using essentially the structure (Fig.27) as an evaporator. Also, in light of the advantages disclosed by Price (page 1, column 2) of using heat exchanger tubes with swedged ends, it would have been obvious to have similarly provided swedged ends

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on the Ogawa's tubes. Claim 4 is considered to be rejectable over Price in view of Ogawa, and vice versa, for the same reasons as specified above.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Price or JP Sho 54-22265 in view of Matsui et al. (JP 08254373).

Price or JP Sho 54-22265 discloses the invention substantially as claimed. However, Price and JP Sho 54-22265 does not disclose using in the refrigeration system. Matsui et al. discloses the integrated system in the same field of endeavor for the purpose of cooling. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the apparatus of Price or JP Sho 54-22265 with a refrigeration system in view of Matsui et al. so as to provide cooling.

Allowable Subject Matter

12. Claims 3 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chen-Wen Jiang whose telephone number is (703) 308-0275. The examiner can normally be reached on Tuesday-Friday from 7:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Esquivel can be reached on (703) 308-2597. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chen-Wen Jiang
Primary Examiner

A handwritten signature in black ink, appearing to be 'C. W. Jiang', written over a horizontal line.